

CLAIMS

1. An air-permeable mattress with great lying comfort and low weight, comprises at least one air-filled pressure cushion (5), characterized in that the mattress consists of a combination of a foam core (1) and air-filled pressure cushions (5), which are either arranged in openings of the foam core (1) or enclose the same, and that for removing humidity, through holes (6, 6') are provided in the foam core (1) and/or in the pressure cushions (5).
2. A mattress according to claim 1, characterized in that an upper support layer (3) made of an especially air-permeable material is provided which rests on the foam core (1) and/or the pressure cushion (5) and supports the removal of secreted bodily humidity away from the body.
3. A mattress according to one of the claims 1 to 2, characterized in that the foam core (1) and/or the pressure cushions (5) rest on a bottom support layer (4) made of an air-permeable material.
4. A mattress according to one of the claims 1 to 3, characterized in that the lying comfort is achieved by means of special pressure cushions (5) which are configured as hollow cylinders.
5. A mattress according to one of the claims 1 to 4, characterized in that the arrangement of the pressure cushions (5) is adjusted to the body zones.
6. A mattress according to one of the claims 1 to 5, characterized in that the pressure cushions (5) are combined into zones and individual pressure resistances for each zone can be pre-selected.
7. A mattress according to one of the claims 1 to 3 and 5 to 6, characterized in that the pressure cushion (5) is configured as a solid cylinder.
8. A mattress according to one of the claims 1 to 7, characterized in that additional openings (6) are provided in the foam core (1) outside of the pressure cushion (5) which increase the air permeability.
9. A mattress according to one of the claims 1 to 8, characterized in that the pressure cushions (5) are composed of several segments which are

arranged so as to lie one above the other, with a pressure compensation occurring by means of internal connecting openings (5b).

10. A mattress according to one of the claims 1 to 9, characterized in that the pressure cushions (5) are arranged next to one another and are joined by means of connecting elements (7), so that a pressure compensation occurs via several mutually connected pressure cushions (5).
11. A mattress according to one of the claims 1 to 10, characterized in that the adjacent pressure cushions are mutually joined in a cross-wise manner by means of connecting elements (7, 8), so that pressure compensation occurs via several pressure cushions (5) combined into one zone.
12. A mattress according to one of the claims 1 to 11, characterized in that the foam core (1) consists of one layer.
13. A mattress according to one of the claims 1 to 11, characterized in that the foam core (1) is composed of at least two layers (1', 1'') with different degrees of hardness.
14. A mattress according to one of the claims 1 to 13, characterized in that several pressure cushions (5) are combined into a zone and the pressure in said zone is adjustable in a continuous manner by means of a controllable valve.
15. A mattress according to one of the claims 1 to 14, characterized in that the lying surface is subdivided into several zones, preferably three (A, B, C) or five zones (A1, C1, B, C2, A2), with the pressure cushions (5) of each zone being mutually connected by means of connecting elements (7, 8) and are each associated with a control valve.
16. A mattress according to one of the claims 1 to 15, characterized in that the system of pressure cushions (5) is connected with an air pump (12) composed of elastic elements and valves, which pump is arranged beneath the mattress, is integrated in the bottom support layer (4) or arranged in the foam core (1), so that an air conveying process is enabled as a result of a shifting of weight of the person lying on the mattress.

17. A mattress according to claim 16, characterized in that the air pump (12) cooperates with a pressure control device (13) for compensating a pressure loss as a result of a leakage loss.
18. A mattress according to claim 16, characterized in that the air pump (12) cooperates with a pressure control device (13) for building up a purposeful increase in pressure in the pressure cushion (5).
19. A mattress according to one of the claims 1 to 3 and 12 to 15, characterized in that the foam core (1) with the walls of the through holes (6) are covered entirely by an air-tight layer (10).
20. A mattress according to claim 19, characterized in that a special valve is provided which is configured as a controllable non-return valve in order to compensate leakage losses when, after a relief of the mattress, the foam material expands the mattress body back to its original form and a negative pressure arises in the interior.
21. A mattress according to one of the claims 19 to 20, characterized in that the through holes (6) with foam cylinders (11) are filled with especially air-permeable foam material.
22. A mattress according to one of the claims 1 to 3, characterized in that the pressure cushions (5) are arranged in openings (1d) in the foam core (1) transversally to the longitudinal axis and parallel to the lying surface.
23. A mattress according to claims 22, characterized in that at least one pressure cushion (5) is arranged in a zone (D) with high pressure hardness as lordosis support.
24. A mattress according to claim 22 or 23, characterized in that there is a subdivision of the lying surface into seven zones (A1, C1, B1, D, B2, C2, A2) for achieving the highest amount of comfort.
25. A mattress according to one of the claims 22 to 24, characterized in that openings (6') are provided which are arranged parallel to the lying surface and penetrate the width of the mattress.

26. A mattress according to claim 25, characterized in that fresh air can be supplied for overall cooling and/or removal of humidity, or warm air for overall heating of the mattress through the openings (6') which are arranged parallel to the lying surface and penetrate the width of the mattress.
27. A mattress according to one of the claims 25 to 26, characterized in that a blower is provided for conveying the air.
28. A mattress according to one of the claims 1 to 27, characterized in that sound-insulating material is provided in the inflow and outflow region of the pressure cushion (5) for reducing the flow noises during a pressure compensation as a result of a change in the position of the person lying on the mattress.
29. A mattress according to one of the claims 1 to 28, characterized in that the system overpressure in the pressure cushion (5) lies between 0.1 bar and 0.6 bar, preferably between 0.15 bar and 0.30 bar.